

The listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-13 (cancelled and not entered)

Claim 14. (original) A semiconductor wafer process apparatus comprising:
a dual-wafer single-axis transfer arm adapted to carry and transfer semiconductor wafers between a loadlock chamber and a semiconductor wafer process chamber, said transfer arm having a monolithic arm pivotally mounted within said loadlock chamber about a single pivot axis;

wherein said transfer arm is adapted to carry at least two wafers simultaneously between said loadlock chamber and said process chamber.

Claim 15. (original) A semiconductor wafer process apparatus according to Claim 14, said transfer arm further including:

a retracted home position and an extended position in which said transfer arm extends into said process chamber, wherein said single pivot axis allows said transfer arm to pivot between said retracted and extended positions; and

a cooling plate disposed below said transfer arm when said pivot arm is in said retracted position.

Claim 16. (currently amended) A semiconductor wafer processing ~~system~~ apparatus according to Claim 15 wherein said cooling plate further comprises a plurality of lift pins for transporting the wafers between said cooling plate and said transfer arm.

Claim 17. (original) A semiconductor wafer process apparatus according to Claim 14 wherein said transfer arm further comprises a lower wafer shelf for carrying a processed wafer and an upper wafer shelf for carrying an unprocessed wafer.

Claim 18. (currently amended) A semiconductor wafer processing ~~system~~ apparatus according to Claim 14 wherein said transfer arm is adapted to simultaneously carry one unprocessed wafer and one processed wafer.

Claims 19-24 (cancelled and not entered)

Claim 25 (cancelled) A semiconductor wafer processing system comprising:

a removable wafer load cassette;

an atmospheric-pressure front end unit including a front end robot for transporting a semiconductor wafer;

a plurality of semiconductor wafer process chambers, each said semiconductor wafer process chamber including

a wafer chuck assembly for translating the wafer within said process chamber, said wafer chuck assembly having a chuck clamping surface for securing a wafer to said wafer chuck,

a plurality of lift pins for transporting the wafer between said transfer arm and said clamping surface, and

a chuck translation frame for translating the wafer between a load position and a processing position;

a multi-chamber module, said multi-chamber module including two or more said semiconductor wafer process chambers in a vertically-stacked orientation;

a loadlock chamber provided for each semiconductor wafer process chamber including

a dual-wafer single-axis transfer arm adapted to carry and transfer semiconductor wafers between said loadlock chamber and said semiconductor wafer process chamber, said transfer arm having a monolithic arm pivotally mounted within said loadlock chamber about a single pivot axis, said transfer arm having a retracted home position and an extended position where it extends into said process chamber, wherein said single pivot axis allows said transfer arm to pivot between said retracted and extended positions, and

a cooling plate disposed below said transfer arm when said pivot arm is in said retracted position, said cooling plate including a plurality of lift pins for transporting the wafers between said cooling plate and said transfer arm.

Claim 26. (new) A semiconductor wafer process apparatus comprising:

a dual-wafer single-axis transfer arm adapted to carry and transfer semiconductor wafers between a loadlock chamber and a semiconductor wafer process chamber, said transfer arm having a monolithic arm pivotally mounted within said loadlock chamber about a single pivot

axis;

wherein said transfer arm is adapted to carry at least two wafers simultaneously between said loadlock chamber and said process chamber; and

wherein said transfer arm comprises a retracted home position and an extended position in which said transfer arm extends into said process chamber, wherein said single pivot axis allows said transfer arm to pivot between said retracted and extended positions.

Claim 27. (new) The semiconductor wafer process apparatus according to Claim 26 further comprising a cooling plate disposed below said transfer arm when said pivot arm is in said retracted position.

Claim 28. (new) The semiconductor wafer process apparatus according to Claim 27 wherein said cooling plate further comprises a plurality of lift pins for transporting the wafers between said cooling plate and said transfer arm.

Claim 29. (new) The semiconductor wafer process apparatus according to Claims 14 or 26 wherein the transfer arm comprises an end effector, said effector comprising an upper shelf and a lower shelf with wafer edge supports thereon respectively and being coupled to the monolithic transfer arm, said effector pivoting with the monolithic arm about said pivot axis.